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ABSTRACT

Interviews and questionnaires were used to gather information from individuals and educational organizations regarding the need and opportunities for coordinating and supplementing support services for educational technology in Wales. Part One of the two-part study describes the production, distribution, and exploitation of Welsh language and English language materials pertinent to Wales. Part Two examines current provisions for educational technology in Wales as well as needs. A major recommendation calls for the formation of a Welsh Committee on Educational Technology to serve as a focal point for the promotion and development of educational technology service in the Principality. Organizations and individuals consulted during this study and publications referred to in the text are listed in the appendices. (CMV)

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Feasibility study on the coordination of support services for educational technology in Wales: report and recommendations

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC) AND USERS OF THE ERIC SYSTEM."

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Ray Lonsdale

CONTENTS

PREFACE
1. INTRODUCTION
1.1 **Background of the Report**
1.2 **Method of survey**
1.3 **Findings**

PART ONE. THE PRODUCTION, DISTRIBUTION AND EXPLOITATION OF WELSH LANGUAGE AND ENGLISH LANGUAGE MATERIALS PERTINENT TO WALES

2. RESOURCE PROVIDERS AND THE PRODUCTION OF MATERIALS
2.1 **Educational materials**
2.1.1 Diversity of production
2.1.2 Unsystematic listing of resource providers
2.1.3 A directory of resource providers in Wales
2.1.4 Broadcast material
2.2 **Welsh language leisure materials**
2.2.1 A definition
2.2.2 Relevance of recreational materials
2.2.3 Sponsorship of books and magazines
2.2.4 Monitoring the reading needs of children
2.2.5 Sponsorship of audio-visual materials

3. THE PROBLEM OF INFORMATION TRANSFER
3.1 **Introduction**
3.2 **Information relating to curriculum innovation**
3.2.1 Uncoordinated information
3.2.2 Resultant problems
3.3 **Information relating to non-commercial publications**
3.3.1 Inadequate bibliographic control
3.3.2 Implications
3.4 **The University of Wales**
3.5 **Information relating to commercial publications**
3.5.1 The relevance of bibliography
3.5.2 General survey of bibliographic control in Wales
3.5.3 Bibliographic control – the needs
3.5.4 Educational bibliographies
3.6 **The dissemination and exploitation of bibliographic information**
3.7 **Conclusions and recommendations**
3.7.1 A Standing Conference for curriculum development and resource provision
3.7.2 A working forum of Welsh language advisers
3.7.3 The establishment of an information secretariat
3.7.4 Control of non-commercial publications

3.7.5 *University of Wales: a central forum for Welsh medium teachers*
3.7.6 *Bibliographic control of commercial publications*

PART TWO THE PROVISION OF EDUCATIONAL TECHNOLOGY IN WALES

4. LOCAL EDUCATION AUTHORITIES: THE PRESENT SITUATION AND REQUISITE NEEDS
4.1 **A definition of educational technology**
4.2 **In-service training**
4.2.1 *Training in the ideology of educational technology*
4.2.2 *Training in the familiarisation of hardware and the production of software*
4.3 **The provision of hardware facilities**
4.3.1 *Facilities for exploiting software*
4.3.2 *Reprographic equipment*
4.4 **Distribution of software**
4.4.1 *Distribution agencies*
4.5 **Conclusions and recommendations**
4.5.1 *Advisers for educational technology*
4.5.2 *National implications*

5. HIGHER EDUCATION: THE PRESENT SITUATION AND REQUISITE NEEDS
5.1 **Introduction**
5.2 **Institutions of higher education excluding the University of Wales**
5.2.1 *Rationalisation of facilities and expertise*
5.2.2 *Rapport with LEAs*
5.3 **The University of Wales**
5.3.1 *Involvement in educational technology*
5.3.2 *Rapport with LEAs*

6. A WELSH COMMITTEE FOR EDUCATIONAL TECHNOLOGY
6.1 **The case for a Welsh Committee for Educational Technology**
6.1.1 *Introduction*
6.1.2 *Welsh representation on the Council for Educational Technology*
6.1.3 *Regional and national development of educational technology – the needs*
6.2 **Conclusions and recommendations**
6.2.1 *A new organisation*
6.2.2 *Structure*
6.2.3 *Relationship with other organisations*
6.2.4 *Financing the organisation*
6.2.5 *Initial action*

SUMMARY OF THE MAIN RECOMMENDATIONS

APPENDIX I: ORGANISATIONS AND INDIVIDUALS CONSULTED DURING THE STUDY

APPENDIX II: PUBLICATIONS REFERRED TO IN THE REPORT

PREFACE

At a meeting of librarians and resource organisers in Llandrindod Wells (July 1976) it became clear that there was a need, felt by many, for more rational and coordinated arrangements for resource provision within the Principality. The Council for Educational Technology, which has set up the Llandrindod meeting, also arranged a meeting with Chairman of Education Committees and Directors of Education of the Welsh Authorities in conjunction with representatives from the Welsh Joint Education Committee and her Majesty's Inspectorate (September 1976). At this meeting the Council was encouraged to undertake a study of the nature of resource provision in the principality and to explore ways in which the provision might be rationalised and coordinated.

With the cooperation of the College of Librarianship Wales we were able to use the services of Mr R Lonsdale as the Investigator. Mr Lonsdale's report is now made available by the Council as a basis for discussion among the interested parties.

From the beginning it was clear that the report, in order to be thorough, would spread over several areas of interest and impinge on the work of existing organisations. To have avoided this by operating within a very narrow frame of reference would have reduced the potential value of the report, and indeed, would have invalidated the concept of the coordinated provision. At the same time it was clear that certain areas of resource provision in the Principality had their own problems and required very specific attention. This was particularly true of the provision of teaching material in the Welsh language. The report, therefore, is in three sections: one concerned with resources in the Welsh language, one with provision by local education authorities and one with the need for a general forum for educational technology in Wales.

The Council for Educational Technology, as a United Kingdom body, has been happy to arrange for this study to be carried out and offers the report to Welsh interests for consideration and discussion. It is, of course, for those interests to decide how best now to advance matters; in moving towards their decision they can be assured that the Council is willing to assist in any way it can.

I have already expressed the Council's indebtedness to the College of Librarianship Wales and to Mr. Lonsdale; I should also like to say how much we have valued the advice and encouragement of all those who have contributed to this study.

The Council would be pleased to receive comments on the report in order to help determine and promote future action.

Geoffrey Hubbard
Director, Council for Educational Technology
August 1977.

1. INTRODUCTION

1.1 Background of the Report

In July 1976 the Council for Educational Technology (CET) convened a meeting at Llandrindod Wells which brought together representatives of the major resource provision agencies in Wales. Discussion centred on the notion of developing a system for coordinating existing educational technology services and for disseminating information about resources in Wales. In the current climate of economic restraint such a system was seen to be invaluable. The meeting recommended that a detailed study be made but referred the matter to a seminar for Chief Education Officers and Chairman of Education Committees which was to take place at Swansea in the following September.

The attention of the seminar was drawn to this issue and members felt that a preliminary study could usefully enquire into the need for coordination of resource provision and educational technology services in Welsh education. A formal proposal was then made that CET should undertake the feasibility study. This was duly accepted by the Council.

The study was initiated in January 1977 with the following terms of reference:

'to examine the need and opportunities for coordinating and supplementing the arrangements for supporting educational technology in Welsh LEAs and institutions of higher education, including:

(a) the provision of information about

(i) resources for teaching Welsh as a first language
(ii) resources for teaching Welsh as a second language
(iii) resources in the Welsh language that cover the whole curriculum
(iv) resources in England pertinent to Wales

(b) the provision of the materials themselves

(c) the preparation of new materials

(d) the relevance of facilities for curriculum development and associated in-service training in educational technology'.

1.2 Method of Survey

To ensure an objective and comprehensive analysis the report has attempted to be as exhaustive as possible with regard to the range of educational bodies consulted. However, due to the time limit imposed, individual schools and

Colleges of Further Education were necessarily omitted from the programme of visits. In the absence of information from these sources reliance has been placed on data submitted by advisers, teachers' centre wardens, field officers and members of the Inspectorate.

The primary method employed during the study was that of the personal interview. To facilitate the collection of information a questionnaire was sent out prior to the meetings and this provided the basis for the ensuing discussion. In a number of instances it was necessary to return to individuals and organisations to discuss matters which had arisen during the latter stages of the survey. All bodies referred to in the recommendations were presented with the tentative proposals for comment.

1.3 Findings

It is hoped that this report will provide an accurate assessment of the needs of the Welsh education system together with purposeful and pragmatic recommendations for future development. To this end the report has attempted to be evaluative rather than descriptive.

On the question of terminology, one point of clarification must be made. In the above terms of reference the phrase 'resources in English pertinent to Wales' has been used to delineate one specific category of material. This proved rather cumbersome when writing the report and was replaced with the phrase 'Anglo-Welsh materials'. It must be realised, therefore, that the term 'Anglo-Welsh' has a more than literary connotation in the context of this report.

PART ONE THE PRODUCTION, DISTRIBUTION AND EXPLOITATION OF WELSH LANGUAGE AND ENGLISH LANGUAGE MATERIALS PERTINENT TO WALES

2. RESOURCE PROVIDERS AND THE PRODUCTION OF MATERIALS

2.1 Educational materials

2.1.1 Diversity of production

During the study a general survey was made of the range of institutions, organisations and individuals engaged in the production of learning resources in Wales. Although it was not a complete analysis it is evident from the findings that there is a marked diversity of resource provision. The following examples are given as an indication of this diversity.

(a) Local and regional provision

(i) Schools

An increasing amount of activity has been observed in Welsh medium and English medium primary and secondary schools. Individual and group initiative has led to the production of original learning materials and translated materials.

(ii) Teachers' centres

Despite the precarious future of teachers' centres in certain authorities, exciting and imaginative resources are being produced in a variety of print and non-print formats.

(iii) Educational Technology Centre, Clwyd

A significant contribution is being made by this Centre to Welsh language resource provision. The production of materials is geared not only to local but also to regional and national needs.

(iv) Institutions of higher education

Little Welsh language material is produced by the Institutes of Higher Education because of the limited number of courses being taught through the medium of Welsh. Colleges of education are more prolific in the production of resources for their own course work as well as for schools.

(v) Local record offices

Valuable Welsh and Anglo-Welsh historical material is being produced for use in schools and colleges by certain county record offices.

(vi) Public libraries

While the production of materials by these bodies is limited, a number of libraries have produced unique and valuable Welsh language resources. Given the embryonic development of some school library service departments, it is anticipated that there will be a significant increase in producing resources in the future.

(b) National provision

(i) The Welsh Joint Education Committee (WJEC)

A dominant role is played by the Committee which is responsible for sponsoring the publication of Welsh language textbooks and general readers for schools.

(ii) The National Language Unit for Wales

One of the main functions of the National Language Unit is the production of teaching materials, in particular, audio-visual resources. The Unit has been primarily concerned with second language Welsh course material but has recently extended its range of production.

(iii) The Schools Council Committee for Wales

Valuable Welsh language and English language teaching resources have emanated from the various curriculum development projects sponsored by the Committee for Wales.

(iv) Other educational organisations

In addition to the three major bodies cited above a number of other educational organisations in Wales are concerned with the production of learning resources. The output of these bodies varies considerably as does the format of material.

(v) The National Museum of Wales and the National Folk Museum, St Fagans

Although these institutions are by nature custodians of resources both bodies also produce a range of learning material for sale and loan to schools.

(vi) Broadcasting corporations

Another source of invaluable print and non-print resources is the education service units of the two major broadcasting corporation in Wales, BBC Wales and Harlech Television.

(vii) Cultural and industrial organisations

Various non-educational organisations produce valuable material of an educative nature which is also available to schools and colleges.

(viii) Individual production

The unique nature of Welsh language publishing has meant that a number of individuals are engaged in producing materials as a result of self-initiative and often without the sponsorship of an organisation. Although the output of these individuals may be small it cannot be ignored.

The case has been repeatedly put that the existing diversity of resource production should be maintained. Three main arguments have been forwarded to substantiate this case.

(a) Educational material frequently emanates from the initiative of individuals. If this initiative is to be encouraged and developed then diversification must be maintained.

(b) Diverse production of resources ensures a healthy variety of subject matter, reflecting local and regional needs and helps to avoid too great a prescriptive element in these materials.

(c) Learning materials used for the teaching of Welsh as a first and second language need to reflect the social and linguistic differences which are inherent in the language. This aim is facilitated by the present variety of organisations and individuals producing language materials.

2.1.2 *Unsystematic listing of resource producers*

However strong the argument is for preserving a diverse range of resource agencies, diffuse production must be complemented by systematization. One of the initial problems faced in this study was that of identifying resource providers in Wales. The task was made difficult by the absence of any systematic listing of resource agencies. During the study it became increasingly evident that educational materials and services offered by organisations and institutions in the Principality were not being fully exploited because individuals were frequently unaware of these bodies or of the services rendered by them.

2.1.3 *A directory of resource providers in Wales*

It has been acknowledged by the majority of individuals consulted during the project that a simple yet effective solution to the problem outlined in Section 2.1.2 would be the compilation of a directory of the major resource agencies in Wales. The purpose of this directory would be to list organisations and individuals offering educational resources and services and to delineate, in detail, the scope and nature of these services. The directory would not, however, list individual materials.

The notion of a national education directory is not new. Precedent already exists in Scotland with a Scottish directory, *National Resources for Education,* compiled and published by the Scottish Centre for Educational Technology. A more comprehensive work listing British resource providers is *Treasure Chest for Teachers,* published for the National Union of Teachers by the Schoolmaster Publishing Co Ltd. As the directory is primarily concerned with organisations located in England only a few, highly selective, references are made to Welsh institutions. It is therefore of limited use for teachers wishing to exploit Welsh language and Anglo-Welsh resources.

If it is to have currency, a directory of Welsh resource providers would need to be produced, distributed and revised regularly by an authoritative body and one which is central to the education system of Wales. Consensus of opinion pointed to three bodies who have the requisite facilities and expertise, and who could accept the responsibility for producing the directory. They are:

(a) The Welsh Joint Education Committee
(b) The National Library of Wales
(c) The College of Librarianship Wales.

The recommendation is made that consideration be given by the above bodies to the production and distribution of a directory of resource providers in Wales and that financial support be made available for the initial compilation of the work.

2.1.4 *Broadcast material*

In addition to the educational programme material produced by the education services of BBC Wales and Harlech Television, valuable Welsh language and Anglo-Welsh general service material is produced. A great proportion of this material is of educative value and is needed to support the teaching of subjects where there is a shortage of educational resources. It is evident, however, that extensive exploitation of these programmes is not always facilitated for the following reasons.

(a) BBC Enterprises does not distribute programme material produced by BBC Wales. No similar distribution agency exists in Wales and consequently educational institutions are restricted from buying and hiring general service material.

(b) The present copyright restrictions imposed on general service programme material inhibit the copying of programmes for use in schools and colleges.

(c) Certain areas of Wales are still unable to receive Welsh language programmes because of inadequate reception facilities.

One other factor which has possibly inhibited the production and distribution of general service output and educational programme material is the uncertainty of the demand for Welsh language material. There appears to be a lack of precise data about:

(a) the number of institutions which would use such material

(b) the availability of hardware for exploiting this material.

Such is the loss to Welsh education that the report recommends further study by BBC Wales and ITV to examine:

(a) the potential demand for visual and audio programme material

(b) the cost and feasibility of establishing a distribution service for Wales

(c) the possibility of relaxing copyright constraint for Welsh language material given the existing shortage of Welsh language resources

(d) the problems of transmitting and receiving Welsh language programmes.

2.2 Welsh language leisure materials

2.2.1 A definition

It became apparent during this study that one area of particular concern to educationalists and librarians alike was the provision of leisure materials for children and young adults. The term 'leisure materials' in this report is understood to mean materials which are not directly associated with an educational context but which have been conceived for the sole purpose of recreation and entertainment. In this sense the term embraces both fiction and non-fiction works.

2.2.2 *Relevance of recreational materials*

Welsh language leisure materials have a vital role to play in the general cultural and linguistic development of the child and adult alike. This role is given due recognition in the Gittens report – *Primary Education in Wales : a report of the Central Advisory Council for Education (Wales)* (HMSO, 1967), pp 385-6 – and in a recent report – *Welsh for Adults* (Council for the Welsh Language, 1976), p 45 – on Welsh language teaching for adults issued by the Council for the Welsh Language. It is essential, therefore, that this report consider the problems inherent in producing Welsh language leisure materials.

2.2.3 *Sponsorship of books and magazines*

The publication of leisure materials in any minority language can only survive if adequate financial sponsorship is provided. At present the major forms of sponsorship come from the following bodies.

(a) The WJEC. An important contribution has been made by this body with the sponsorship of general reading books for schools.

(b) The Urdd Gobaith. The Welsh League of Youth produces a number of magazines for first and second language learners.

(c) The Welsh Arts Council. The Council has recently developed a role in the provision of sponsorship for leisure reading materials with the creation of the Children's Book Panel and the funding of several publications. It is hoped that this financial support will be extended.

In addition to these activities a number of writers publish leisure books without any institutional sponsorship.

A number of observations have been made on the nature of existing sponsorship. There is a discernible body of opinion which feels that, in addition to the WJEC scheme, it is important for children to view leisure materials on display in shops and libraries and thus be afforded the opportunity of purchasing or borrowing them.

As a corollary of this more books and magazines should be produced in the mould of popular series such as *Y Llewod,* or the comic *Hebog,* or the encyclopaedia *Chwilota.* There appears to be an acute shortage of 'light' recreational fiction and non-fiction reading material for all age groups.

The third observation is that in addition to the existing forms of financial sponsorship, much greater financial support should be given directly to writers and publishers. Two suggestions have been forwarded to this end:

(i) the central grant for publishers (at present administered by the University of Wales) be extended to include children's materials

(ii) the Welsh Office should examine the feasibility of creating an additional central grant for children's materials.

The report feels, however, that the present shortage of adult leisure materials would be made more acute if the central grant to publishers was to be divided. It is hoped that due consideration will be given the possibility of creating additional finance as suggested in section (ii) above.

2.2.4 *Monitoring the reading needs of children*

Any increase in financial sponsorship for children's books and magazines must be complemented by the effective monitoring of the reading needs of children. Cognisance of recent surveys and reports on the reading habits of children has been taken, yet there remains a need for some form of systematic means of discerning the gaps which exist in the provision of leisure materials for children. The suggestion has been made by many individuals that an independent study could be set up to explore the most effective ways of identifying reading needs.

2.2.5 *Sponsorship of audio-visual materials*

In our consideration of leisure materials the value of Welsh language audio-visual resources has not been overlooked. The work of the broadcasting companies and of specialist organisations such as the Welsh Film Board has been examined. No other conclusion can be made than to reiterate the need for increased financial support for the production of new materials.

3. THE PROBLEM OF INFORMATION TRANSFER

3.1 Introduction

'There can be little doubt about the importance of communication channels to the success of any innovatory work: no matter which strategy is adopted, a fast free flow of information is essential to the enterprise.' (K G Collier *et al*, *College of Education and Learning Programmes: a proposal* (National Council for Educational Technology, 1971), p 60).

The implications of this statement are crucial to resource producers and users alike in any educational context. In the context of the provision and distribution of resources in Wales the implications are of paramount importance for two reasons:

(a) information about resources must be adequately disseminated if full use is to be made of the comparatively small array of Welsh language and Anglo-Welsh materials

(b) communication channels need to be well defined and operable if the diverse range of producers outlined in Section 2.1.1 are to succeed in producing and disseminating material in a coordinated and rational way.

3.2 Information relating to curriculum innovation

3.2.1 Uncoordinated information

Even at the initial stage of planning curriculum projects there appears to be a fundamental breakdown of information transfer. Information relating to new and projected curriculum development activities is not always made available. This occurs most frequently in and among local education authorities (LEAs) where teachers often plan and produce materials in isolation. Most of the major educational organisations take great care in disseminating information about projected activities. It is unfortunate, however, that the projects and materials emanating from some organisations are not known to teachers, advisers and, in certain instances, other educational institutions; or that communication frequently occurs in a fortuitous way.

Communication between institutions of higher education and LEAs differs radically. Teachers in the institutes of higher education who have responsibility for Welsh language teaching feel that existing channels for information flow are at best *ad hoc*. Colleges of education appear to have more systematic rapport, particularly with innovatory activities within their locale.

3.2.2 Resultant problems

The systematic transfer of information about curriculum innovation has led to the following undesirable features.

(a) The lack of an overview of existing and projected activity – this has inevitably resulted in lack of coordination in the planning of new projects on a national scale. A corollary is the unsystematic monitoring of the need for new materials. Without an overview it is impossible to gauge accureately those areas of the curriculum which require development and the provision of new resources.

(b) Duplication – many examples have been cited of duplicated effort, with teachers often unaware that colleagues in neighbouring authorities are working in precisely the same subject areas. Duplication of effort and materials would appear to be particularly undesirable in light of the unique problems of Welsh language resource provision.

(c) Uncoordinated production of materials – the report has frequently seen examples of material being produced at a local or institutional level which, in the context of Wales, has had a national relevance. These materials have been conceived in isolation for a restricted clientele and have therefore been produced in limited numbers. This has proved to be particularly wasteful with the current national shortage of Welsh language resources.

3.3 Information relating to non-commercial publications

3.3.1 Inadequate bibliographic control

The problem of communicating information about curriculum innovation and learning materials is further accentuated by the inadequate arrangements for listing and disseminating information about locally or institutionally produced resources held in local authorities. *Ad hoc* attempts have been made in certain authorities, and one authority, Mid Glamorgan, has initiated a project using manpower made available by the Job Creation Scheme which is attempting to list resources held within the LEA.

Apart from these attempts it is apparent that such material is rarely, if ever, listed centrally within an authority and that information is, therefore, not facilitated on a national basis.

In addition to resources produced by LEAs valuable Welsh language research material used in the work of the Schools Council projects is held in various educational institutions. Although its existence is known of within these institutions information should be disseminated on a much wider scale.

3.3.2 Implications

The inadequate listing and dissemination of information about non-commercially-produced resources has given rise to the following problems.

(a) The absence of any overall knowledge of the scope, content or quality of these materials – a predicament complementing the problem cited in Section 3.2.2 (a) above.

(b) Under-exploitation of resources – many examples were forwarded of materials which were available for copying; loan; sale or consultation, but which were not exploited because there was inadequate information about their existence.

(c) The duplication of materials mentioned in Section 3.2.2 (b) above is reinforced because of the absence of adequate listing.

(d) The limited sharing of expertise and experience gained by the production of materials.

3.4 The University of Wales

A similar breakdown of communication of information about curriculum innovation and 'in-house' resources is evident among the University Colleges in the province of Welsh medium teaching. Independent production of these materials occurs and no listing of institutionally produced resources is made. Members of the Circles of Welsh Medium Teachers at the University College of Wales, Aberystwyth and the University College of North Wales, Bangor have commented on the need for a more rational approach to the exploitation of expertise and facilities in the production of new Welsh language materials. This comment has been echoed by individuals consulted in the other University Colleges.

3.5 Information relating to commercial publications

3.5.1 The relevance of bibliography

In contrast to non-commercial publication a sophisticated system exists to facilitate the systematic listing of commercially produced material. This system is referred to as 'bibliographic control' and is essential to the production and exploitation of commercially produced educational materials for a variety of reasons:

(a) it enables quick and comprehensive searching and therefore is an important time saving and cost effective device for the librarian

(b) the acquisition of new materials can become ineffective without systematic bibliographic control

(c) general bibliographies provide the basis for the compilation of specialist education bibliographies.

3.5.2 *General survey of bibliographic control in Wales*

To ascertain how effective information transfer was about commercial publications the following analysis was made of the bibliographic control of Welsh language and Anglo-Welsh materials:

(a) Welsh language print based material

(i) Forthcoming information

No comprehensive bibliography exists giving information about Welsh language print-based material. A few organisations do produce lists of their own forthcoming publications, eg *Llyfrau Cymraeg i Blant* (WJEC, 1976).

(ii) Current information

Welsh publishers are not exempt from the copyright deposit requirements. However, it is apparent that the British Library and the National Library of Wales are experiencing difficulty in getting publishers to adhere to this commitment. One implication of this is that the major current bibliography, the *British National Bibliography* (BNB) lists only a small percentage of Welsh language titles. The usefulness of this bibliography is further impaired by the inordinate delay in recording material. Another contributory factor to the inadequacy of the BNB as a bibliographic tool for Welsh language material was the absence, until recently, of staff with linguistic expertise.

The Welsh Books Council has provided the most helpful form of current listings with the publication of monthly lists of materials distributed by the Welsh Books Centre. They are not comprehensive in the range of print-based material and although they are usefully annotated they lack bibliographic expertise. A quarterly publication, *Llais Llyfrau*, is also produced by the Welsh Books Council, giving quarterly cumulation of new titles together with extensive reviewing articles and book news.

Publishers' catalogues, circulars and journals provide the only other sources of current information. This information tends to be diffuse.

(iii) Annual listings and in-print bibliographies

The Welsh Books Council produces a valuable annual list of material which has been distributed by the Centre during the previous year known as *Catalog Llyfrau Cymraeg*. Again this is not comprehensive nor does it indicate whether titles are still available and in print.

An annual trade catalogue, *Catalog Llyfrau Cymraeg,* has been produced by the Union of Booksellers and Publishers in Wales. This work is of limited value because of its selective nature and unsystematic format.

There has been no annual in-print bibliography of Welsh language material since the last appearance in 1970 of *Llyfrau Cymraeg mewn Print.* A number of specialist bibliographies have been produced, eg, Rhiannon Jones *Llyfrau Cymraeg i Blant* (Cyngor Llyfrau Cymraeg, 1975). It is unfortunate that there is no provision for revising these works annually.

(iv) Retrospective bibliographies

There is a range of retrospective lists available, the most comprehensive being the *Bibliotheca Celtica* which is produced by the National Library of Wales, at five-yearly intervals. It is anticipated that this work will be modified and will be produced annually.

(b) Welsh language non-print material

There is no comprehensive listing of Welsh language non-print material on either a current or an annual basis. Distributors' catalogues and journals provide the main source of information but in a diffuse way.

(c) Anglo-Welsh print based material

The bibliographic control of Anglo-Welsh materials is facilitated by the major English language trade and national bibliographies. A selection of titles are also listed in the Welsh Books Council publications cited above. Retrospective material is listed in the *Bibliotheca Celtica.*

(d) Anglo-Welsh non-print material

The bibliographic listing of non-print material is not systematic and librarians appear to rely on information imparted in distributors' catalogues.

3.5.3 Bibliographic control – the needs

The conclusions drawn from the analysis concur with the opinion of librarians throughout the Principality that the present form of bibliographic control is diffuse and incomprehensive. There is a need for the following developments:

(a) the creation of a comprehensive system of collecting information about forthcoming Welsh language materials

(b) the creation of a current, comprehensive, annotated bibliography of Welsh and Anglo-Welsh materials. Given the comparatively small output of material it would seem feasible to produce a monthly list of print and non-print materials, which would be of value to librarians and teachers alike

(c) the compilation of a comprehensive, annotated annual listing of Welsh and Anglo-Welsh materials available in print.

3.5.4 *Educational bibliographies*

In addition to general bibliographies, great reliance is placed by teachers and librarians on subject bibliographies which cater for the specific needs of the user. The provision of specialist bibliographies in Welsh education is inadequate and frequently unsystematic. An amazing array of institutions have been called on to produce such lists – institutions which often have little bibliographic expertise and few facilities. This inadequacy is due in part to the lack of systematic bibliographic control discussed in Section 3.5.3. It has also evolved because of the absence of any central bibliographic service for Wales.

It is felt in many quarters that the National Library of Wales could make a significant contribution to this area by establishing an educational service for schools. In 1974 a recommendation was made by the Schools Council Committee for Wales that 'the Council of the National Library should consider establishing a schools department in the National Library of Wales'. (*Teaching Through the Medium of Welsh in Secondary Schools*, Schools Council Committee for Wales, 1974, p 41.)

This report supports that notion, and believes that the creation of an Education Officer would be of immense value.

3.6 **The dissemination and exploitation of bibliographic information**

The compilation of a bibliography constitutes only the first stage in the process of communicating information about resources. Evidence has revealed that widely distributed and comprehensive lists of some major educational organisations are not always exploited or acknowledged.

The breakdown of information transfer occurs between and within institutions and numerous examples have been cited supporting this fact. Many individuals and organisations have pointed to the need for assistance in promoting their services. Others have commented on the need for an examination of communication patterns.

It would seem that there is a strong case for establishing a support service to promote the dissemination of information about innovative activities and resource materials.

3.7 Conclusions and recommendations

3.7.1 *A Standing Conference for curriculum development and resource provision*

To facilitate more effective coordination of curriculum development activities, and to promote the systematic production of learning materials (see section 3.2 above) it is recommended that a permanent Standing Conference or similar body be convened to bring together representatives from local education authorities and organisations concerned with:

(a) the teaching of Welsh as a first and second language

(b) the teaching of subjects through the medium of Welsh

(c) the teaching of subjects which have a discernible Welsh content through the medium of English.

The case for a unifying organisation has been repeatedly put by individuals in LEAs, educational organisations and institutions of higher education.

The decision to make this modest proposal was conditioned by two beliefs:

(a) that it is a practicable proposition at this particular point in time

(b) that the need for this development is long overdue and the situation must not be allowed to deteriorate any longer.

3.7.1.1 The initial function of this body would be to:

(a) coordinate and disseminate information about current and projected curriculum development activities thus providing an overview and ensuring that a systematic approach is brought to development in this area

(b) monitor the need for new learning materials

(c) facilitate rationalised production of resources.

3.7.1.2 The individuals and organisations represented should be those making significant and regular contributions as innovators or producers to the areas of teaching mentioned above. (See Section 3.7.1 a,b,c.)

3.7.1.3 To ensure that members keep abreast of current development the Standing Conference should be convened on a termly basis. The Standing Conference should also have a rotating venue if the problems of geographical proximity are to be successfully countered.

3.7.1.4 Views on how the Standing Conference should be constituted are disparate. Some envisage the creation of a new body under the aegis of the proposed Welsh Committee for Educational Technology (see Section 6 below).

The majority feel that this notion should be discounted for two reasons:

(a) the inordinate delay in creating and establishing a new body

(b) the danger of setting up another body which may duplicate the work being carried out by the existing array of educational organisations.

There are two organisations which could provide a nucleus for this Conference:

(a) Schools Council Committee for Wales
Sub-Committee for Welsh Language
Sub-Committee for Welsh Studies

The Schools Council would be relevant because:

(i) it has a pertinent remit, particularly in light of the proposed change of ethos towards increased involvement in dissemination activity and closer rapport with the Department of Education and Science and LEAs

(ii) it has had suitable experience in initiating projects, researching needs for curriculum development and in information dissemination

(iii) comprehensive representation for schools is made on both sub-committees

(iv) meetings of the sub-committees are covened on a termly basis.

(b) The National Language Unit for Wales: WJEC Consultative Committee

The arguments in favour of the WJEC consultative committee of the National Language Unit are as follows:

(i) it has a remit relevant to this purpose
(ii) there is suitable representation on this committee from LEAs

Modification to both the structures mentioned above would have to be made if the nature of representation envisaged in Section 3.7.1.2 is to be facilitated.

It is suggested, therefore, that consideration be given by the above bodies to the establishment of the proposed Standing Conference.

3.7.2 *A working forum for Welsh language advisers*

Although bodies such as the WJEC and the National Language Unit do provide occasion for Welsh language advisers to meet, the view has been expressed by individual advisers that they could well benefit from additional informal meetings. Music and drama advisers, for example, maintain close contact in this way. It is the belief of the report that Welsh language advisers should convene regular meetings to complement the work of the proposed Standing Conference. This would ensure the effective transfer of information about curriculum innovation and resource production within their respective authorities.

3.7.3 *The establishment of an information secretariat*

The creation of the proposed Standing Conference can only provide a partial solution to the problems of information transfer discussed in Sections 3.2, 3.3 and 3.5 above. An support service for disseminating information about resources and innovation would be essential to the proper functioning of the conference. The case has been repeatedly put that there is an urgent need to establish such a service for providers and users in the field.

To help achieve this aim the report recommends the establishment of a full-time information secretariat.

3.7.3.1 The person should be appointed by and made answerable to the body sponsoring the aforementioned Standing Conference. They would be placed on the payroll of that body.

3.7.3.2 The brief of the Information Officer would be to coordinate and disseminate such information as may be required by the Standing Conference and by individuals and organisations concerned with the creation, production and use of Welsh language and Anglo-Welsh resources.

3.7.3.3 For the effective execution of these duties the Information Officer must be supported by adequate secretarial assistance and reprographic facilities.

3.7.3.4 The person appointed would need to have professional experience and expertise appropriat to an educational information officer.

3.7.4 *Control of non-commercial publications*

To help compensate the inadequacies mentioned in Section 3.3 above, it is recommended that each authority creates a central listing of locally produced 'in-house' material. If this is to be achieved in a rational way, it will be necessary to:

(a) identify agencies within LEAs which are capable of formulating centralised lists

(b) ensure that the production and dissemination of these lists are coordinated.

These duties could be considered as part of the brief of the aforementioned information secretariat.

3.7.5 *University of Wales: a central forum for Welsh medium teachers*
In view of the inadequacies cited in Section 3.4, the report recommends the creation of a central body or forum to bring together representatives from all colleges who are concerned with teaching through the medium of Welsh.

This forum could act as a platform for examining the creation and production of Welsh language materials throughout the University and explore ways of achieving greater rationality. The central body could also provide appropriate representation for the proposed Standing Conference.

As these views are emanated from individuals represented on the Circles of Welsh Medium Teachers the initiative for establishing a central forum could well come from these bodies.

3.7.6 *Bibliographic control of commercial publications*
The present state of bibliographic activity in Wales has given rise to so much concern among librarians and educationalists that the report feels a revaluation should be made of the situation.

It is recommended, therefore, that a Working Party be set up without delay, to examine the bibliographic activity in Wales with particular reference to the inadequacies delineated in Section 3.5.3.

Representation on this Working Party should be made from appropriate library and educational organisations concerned with the development of librarianship and bibliography in Wales.

The initial momentum and funding for this Working Party could come from the British Library.

PART TWO THE PROVISION OF EDUCATIONAL TECHNOLOGY IN WALES

4. LOCAL EDUCATION AUTHORITIES: THE PRESENT SITUATION AND REQUISITE NEEDS

4.1 A definition of educational technology

In its broadest sense the concept of educational technology embraces the development, application and evaluation of 'systems, techniques and aids to improve the process of human learning'. (National Council for Educational Technology, *Towards effective learning*, Councils and Education Press, 1969.) The Hudson Report reiterates the fact that educational technology is not simply concerned with the use of hardware and software facilities but with the interaction between these facilities and 'other elements of educational theory and practice'. (*Central Arrangements for Promoting Educational Technology in the United Kingdom*, HMSO, 1972, p 3.) This ideological dimension of educational technology has important implications for curriculum planning, teaching method and and the organisation and management of resources. In examining the situation in Wales, the report has been concerned with educational technology in its broadest sense.

4.2 In-service training

There is a disparity among LEAs in their interpretation of educational technology with many educationalists conceiving it as simply the provision of hardware and software facilities. As long as users restrict its meaning in this way the full potential of educational technology cannot be realized.

4.2.1 Training in the ideology of educational technology

This widespread misconception about educational technology is accentuated by the fact that educationalists, at all levels, experience pressures which prevent them from keeping abreast of the latest innovations in educational technology. It is evident that both deficiencies can only be overcome by the provision of adequate in-service training programmes for advisers and teachers alike.

Few in-service training courses of this kind appear to have been developed on a systematic basis and there is a need for more intensive activity in this area. Although in-service training programmes are being developed by most LEAs insufficient emphasis has been placed on the ideological ramifications of educational technology. This has arisen partly from a lack of appreciation of the potential of educational technology and partly from the absence of relevant expertise.

It is an interesting observation that the most significant developments have taken place in those authorities which have appointed an adviser or teacher-adviser to coordinate and develop educational technology.

4.2.2 *Training in the familiarisation of hardware and the production of software*
In-service training programmes concerned with the use of hardware facilities and the production of audio-visual aids are well established within most LEAs in Wales.

Courses offered range from the fundamental to the advanced, and it is gratifying to see that exploitation is being made of the more sophisticated hardware which is now available in schools. A noticeable trend has been the development of on-site courses in an attempt to mitigate the pressures of financial constraint which have inhibited the release of teachers for the purpose of in-service training.

On-site courses have also developed as a result of a change in the philosophy of training method. This is indicative of the healthy interest being shown by individuals in the reappraisal of in-service training techniques.

Unfortunately, innovation often occurs as an isolated activity and information about the development of new training techniques is frequently *ad hoc*. This has led to an irrational use of expertise and unnecessary duplication of effort.

Similarly, the needs of individuals and institutions for in-service training are not always met in a systematic way for the following reasons:

(a) information about these needs is frequently diffuse and uncoordinated

(b) the availability of in-service training courses is often unknown because of inadequate dissemination of information.

4.3 The provision of hardware facilities

4.3.1 *Facilities for exploiting software*
There is a great variation among LEAs in the degree and nature of provision of equipment for supporting the use of software in schools. Certain authorities appear to be well endowed with a sophisticated range of hardware while others are less fortunate.

Most authorities hold inventories of equipment but there appears to be little awareness, on a national scale, of the provision of hardware. This is a significant drawback when attempting to analyse the potential demand for the provision of broadcast material mentioned in the Section 2.1.4 above.

4.3.2 *Reprographic equipment*
The range of reprographic equipment held in each LEA is considerable, although the nature and mode of exploitation of these facilities differ greatly

Evidence suggests that there is a lack of systematic information about reprographic equipment and requisite technical expertise both within and among certain authorities.

A recent survey by the Personnel and Management Department of one authority revealed that increased productivity could be brought to the manufacture of resources if existing hardware was used in a more rational way. This would appear to be the case in a number of other authorities.

4.3.2.1 Centralisation of production services: in 1970 the WJEC submitted a report to the Local Authorities Committee setting out the framework for developing Centres for Educational Technology in Wales. (*A Resources for Learning Centre in Wales*, WJEC Local Authorities Committee, Dec 1970, Minute 3.) As a result of this report the Centre for Educational Technology, Clwyd, was established in the north. The contributions which have been made by this Centre to Clwyd and neighbouring authorities are substantial; and it is the opinion of this report that adequate financial support should be given to maintain and develop the work of this Centre.

The WJEC report also recommended the establishment of a second centre to be located at Treforest but due to problems of finance the proposal has been shelved.

Consultation with individuals in Mid-Glamorgan suggests that there should be an immediate reconsideration of the possibility of establishing this Centre. Moreover, the development of educational technology services to LEAs by institutions such as the Polytechnic of Wales would possibly necessitate a reassessment of the role of a Centre for Educational Technology for South Wales if rationalisation of resources is to be ensured.

Certain institutions and individuals in Mid-Wales have expressed a need for similar centralised reprographic facilities to support locally produced resources. Indeed, many people feel it imperative that an examination be made of the feasibility of developing a third centre of educational technology for this area.

4.4 Distribution of software

4.4.1 Distribution agencies

Responsibility for the selection, acquisition and distribution of software within and to schools is taken on by a range of bodies.

Some authorities have a central resource service which provides both print and non-print materials for schools. These services are usually administered jointly by the education and library departments. In certain instances resources are provided solely by the schools' service of the library department. In other authorities separate provision is made for print and non-print materials. Some authorities possess no centralised services for audio-visual resources, and in one instance no centralised provision of either form of resources is evident.

The availability of advice for the selection and acquisition of audio-visual materials in schools varies enormously throughout authorities. It is usually related to the degree of coordination of educational technology services achieved within the authority.

4.5 **Conclusions and recommendations**

Consideration has been given to the implications of the above findings and it would appear that an immediate priority is the development of educational technology services within authorities.

4.5.1 *Advisers for educational technology*

Local education authorities must ensure that the contribution which educational technology has to offer is fully acknowledged and exploited. To achieve this rationally, the report recommends that due consideration be given, by each authority, to the appointment of an adviser for educational technology.

In making this recommendation cognisance has been taken of the existing appointment of advisers who have 'partial' responsibility for educational technology and, in the case of West Glamorgan, the appointment of a full-time teacher-adviser for this field.

The report is aware of the considerable financial implications of this recommendation, and therefore accepts that it will be viewed as a 'medium-' or 'long-term' proposition.

Nevertheless, the role these persons would play is vital to the successful development of educational technology throughout the Principality. To this end the report delineates the following proposals.

4.5.1.1 The appointment should be full-time and of 'adviser' status. This conclusion was reached in considering the degree and level of development required within individual authorities.

4.5.1.2 The person appointed should have the requisite experience and expertise to facilitiate the development of educational technology in its broadest sense.

4.5.1.3 The adviser's initial duties would be as follows:

(a) to act as a coordinator and innovator in the establishment of in-service training courses concerned with educational technology. (See Section 4.2 above.)

(b) to advise on the acquisition of hardware

(c) to help ensure that maximum exploitation is made of hardware facilities within the LEA

(d) to help achieve full and proper exploitation of software resources by offering consultative advice where necessary.

(e) to act as an information officer and provide such central information as may be required about local or national services and developments

(f) to liaise with other organisations and individuals concerned with educational technology on a local, regional and national basis

(g) to be represented on the regional committee of the proposed Welsh Committee for Educational Technology (Section 6.2.2 (b) below).

4.5.2 National implications

In addition to the implications for individual authorities the findings point to considerations of national import. These are referred to and discussed in Section 6.1.3 below.

5. HIGHER EDUCATION: THE PRESENT SITUATION AND REQUISITE NEEDS

5.1 Introduction

At the outset of this study it was envisaged that any consideration of educational technology support services would embrace all sectors of education. Due to the size of the task it was subsequently recognised that certain priorities would have to be established. For this reason the decision was taken to focus the examination on primary, secondary and further education.

However, an analysis of the development of educational technology services within the LEAs would be incomplete without reference to the important contributions which are being made by various institutions of higher education. In turn, consideration must be given to the emphasis placed on educational technology within these institutions if their involvement with LEAs is to be fully understood.

This chapter endeavours to:

(a) provide a general assessment of support services for educational technology within institutions of higher education

(b) examine the contributions which are being made to LEAs by this sector of education.

For the purpose of providing a general survey the field of higher education was divided into two categories:

(a) institutes of higher education; colleges of education; specialist colleges of higher education and the Polytechnic of Wales

(b) The constituent colleges of the University of Wales

5.2 Institutions of higher education excluding the University of Wales

Any discussion of the development of educational technology within these institutions must be qualified by reference to two important considerations.

(a) The Institutes of Higher Education are comparatively new establishments and are still experiencing problems of reorganisation and assimilation.

(b) The projected rationalisation of teacher-training in Wales has tended to overshadow and inhibit developmental policy. Certain colleges are

reluctant or unable to consider the future development of educational technology services until this matter is resolved.

5.2.1 *Rationalisation of facilities and expertise*

There is, among these institutions, a genuine awareness and understanding of the potential contribution that educational technology makes to contemporary education. It is laudable that this awareness has been translated into practical terms with the development of well-structured and well-organised media service units and resource centres in many of these institutions. Even those bodies which have not as yet established such highly developed services have revealed a concern for a rational policy for development and have or are about to undertake a close examination of the requisite needs.

Colleges are well endowed with hardware facilities ranging from the most sophisticated, eg, closed circuit television, video-recording equipment, to the more fundamental technical machinery.

Evidence suggests that in-service training for staff in the familiarisation and use of hardware is comparatively well developed. There were, however, problems in getting members of staff to comprehend the value and significance of the new technology to their work. There is a need, similar to that experienced in the LEAs, for training in the concepts of educational technology.

An increasing emphasis is placed on the use of audio-visual learning materials by students. This is a result of two developments:

(a) the establishment of resource centre units where equal emphasis is given to the provision of print and non-print material

(b) the provision of well-structured induction courses on the use of audio-visual materials.

The major needs of these institutions relate to finance and manpower. It is the belief of this report that if the existing and potential developments are to be realised it can only be with increased financial support. Furthermore, in the event of redeployment of staff as a result of the proposed rationalisation of teacher-training, it is felt that due consideration should be given to the manpower needs of educational technology witnessed in certain institutions.

5.2.2 *Rapport with LEAs*

It is evident that a number of these institutions have a vital role to play within the LEAs. The nature of this rapport differs between authorities. In general these activities embrace the following services:

(a) the provision of expertise and facilities for in-service training courses

(b) support facilities for the production of learning resources

(c) the use of equipment for the exploitation of software

(d) a general information service on various aspects of educational technology.

In providing these services there is a possibility of duplication of effort and irrational use of resources unless activities are planned in a coordinated way. To alleviate this danger it is strongly urged that suitable channels of communication are established between relevant parties in LEAs and institutions of higher education. The recent development in certain authorities of working parties to examine future liaison between schools and colleges in the provision of educational technology services is welcome.

5.3 The University of Wales

5.3.1 *Involvement in educational technology*

Unlike the previous sector of education, there is a marked disparity among the constituent colleges of the University of Wales in their attitude towards and interpretation of the concept of educational technology. This is consequently reflected in the nature of services provided within the various colleges.

With the exception of the University College, Cardiff, none of the other colleges which were visited had a centralised unit responsible for servicing the college as a whole. In these colleges emphasis is frequently placed on specific areas of educational technology only. In spite of the efforts of individual departments to provide what is often an *ad hoc* service there is a crucial need for the development of a programme of rationalisation and coordination similar to that envisaged for the LEAs.

One cannot ignore the valuable contributions made by the Centre for Educational Technology at University College, Cardiff, nor the work of individual departments in the other colleges.

However, a number of undesirable problems have arisen as a result of a general lack of appreciation of the potential contribution of educational technology.

They are summarised as follows.

(a) There is little formalised in-service training for teaching staff in the conceptual aspects of educational technology, or in the more fundamental exploitation of hardware and software facilities. Cognisance has been taken of the general in-service training course for newly appointed teaching staff which is run at University College, Aberystwyth. However not all colleges participate and there is a need for such training on a continued basis within the individual colleges.

(b) In certain instances the absence of a centralised educational technology service has led to:

(i) lack of coordination of information about the availability of hardware resources

(ii) under-exploitation of equipment

(iii) the acquisition of incompatible machinery

(iv) the lack of an advisory service for teaching staff

(v) uncoordinated and irrational production of learning materials.

(c) Innovation can be stifled because of the absence of adequate support services.

5.3.2 *Rapport with LEAs*

The contribution made to LEAs by the University Colleges in the areas of in-service training and support services is considerable. However, there is a discernible feeling in certain colleges that are more realistic contribution could be made if greater rationalisation is first achieved within the college.

To ensure that such rapport develops in a coordinated way, well-defined channels of communication must be established between the colleges and relevant parties in the LEAs.

6. A WELSH COMMITTEE FOR EDUCATIONAL TECHNOLOGY

6.1 The case for a Welsh Committee for Educational Technology

6.1.1 Introduction

Throughout the study, one issue which has received unanimous support from all sectors of education in Wales is the need for a Welsh Committee for Educational Technology. The case for establishing a new body rests on two arguments:

(a) the need for more effective representation for Wales on CET

(b) the need for a permanent structure to support and coordinate educational technology development in Wales.

The substance of these arguments is delineated in full in the following sections.

6.1.2 Welsh representation on the Council for Educational Technology – the needs

The present constitution of CET permits direct representation for Welsh local education authorities through the WJEC. Representation for other sectors of the Welsh education system comes in the form of nominating bodies who represent the interests of England and Wales.

In addition to the above, provision is made for one assessor to be nominated by the Welsh Education Office to the Council. Sound though the existing forms of representation are, it is widely felt that they do not provide an adequate platform for professional people concerned with educational technology in Wales.

The unique linguistic, cultural and social heritage of Wales is reflected in her education system. Educational technology must ultimately embody this heritage, giving rise to problems which can only be effectively considered by a body of individuals who are familiar with the Welsh situation.

The platform for this body could be provided by the creation of a Welsh Committee for Educational Technology which would, in turn, create a more representative voice on CET for educational technologists in Wales.

To substantiate this claim comparison is drawn with the situation in Northern Ireland and in Scotland. In 1974 the Northern Ireland Committee for Educational Technology (NICET) was set up by the Department of Education for Northern Ireland. This body acts as a focal point for developmental work in education technology in the province. As a recognised sector committee of CET it provides a relevant voice for educational technologists in Northern Ireland.

Although the structure and constitution of the Scottish Council for Educational Technology (SCET) is fundamentally different from that of NICET it provides a similar national focal point for Scotland.

6.1.3 *Regional and national development of educational technology – the needs*
In addition to providing effective representation on CET, the creation of a new Committee for Wales would have appreciable benefits for the effective development of educational technology in the Principality. The contributions which could be made by the Committee fall into three categories and are summarised below.

6.1.3.1 Appreciation of educational technology: it is apparent from the conclusions drawn in Sections 4 and 5 that development of educational technology services is inhibited by inadequate consideration of the role of educational technology in contemporary education. The presence of a Welsh Committee should stimulate an increased awareness of the potential of the new technology in all sectors of education.

6.1.3.2 A support structure for regional and local development: to facilitate and support the coordination and interchange of experience among the various sectors working at local and regional levels a permanent structure is necessary. The regional committees envisaged below (in Section 6.2.2 (b) would provide this structure.

6.1.3.3 National development: a number of national problems concerned with educational technology have been identified during this study. These problems require the research and sponsorship that a Welsh Committee could provide. In addition, the Committee would be able to identify new national needs as they arise and to arrange for their satisfaction. Among the most urgent matters for consideration are the following:

(a) the need to monitor and support the development of regional educational technology centres (Section 4.3.2.1 above)

(b) the training of Welsh-speaking media technicians for broadcasting

(c) the need for a new examination of the role of educational broadcasting in Wales

(d) the establishment of an Information Secretariat to identify, encourage and disseminate information about the application of educational technology in Wales.

6.2 Conclusions and recommendations

6.2.1 *A new organisation*

In devising the following recommendation, cognisance has been taken of the existing facilities and services for developing educational technology in Wales; of the present and potential needs of the educational system; and of the case for establishing a body which would provide a focal point for educational technology in the Principality.

It is the belief of this report that the creation of such a body is crucial to the rational and effective development of educational technology in Wales. Accordingly, it is recommended that immediate consideration be given by local education authorities, representative educational organisations and major organisations providing specialist services in Wales for the establishment of a Welsh Committee for Educational Technology.

The Committee would have as its terms of reference the promotion and development of educational technology service in Wales.

6.2.2 *Structure*

It is not the remit of this study to examine in depth the structure of the proposed Committee. However, a general indication of the format of this body is essential to an understanding of its role. The following suggestions are based on a consensus of opinion drawn from individuals consulted during the study.

It is envisaged that the Committee would comprise the following facets:

(a) A national representative committee: this would provide the national forum and would convene meetings as appropriate. Nomination for representation on this committee would be made by all the major sectors of education together with major organisations providing specialist services in Wales.

It is envisaged that the Welsh Committee for Educational Technology would be registered as a participating body under the sector requirement procedure of CET. In this respect its relationship to CET would be similar to that of NICET.

It would be hoped that the Secretary of State might ask for a nomination to represent the Welsh Committee on CET. In the eventuality of this the national representative committee would nominate a representative.

(b) Regional committees: a second tier of regional committees is envisaged to provide working forums for individuals within the local authorities and institutions of education.

It has been emphasised that these committees should have a strong pragmatic function to facilitate effective coordination and development of educational technology activities. The regional committees should have the authority and facilities to establish *ad hoc* working parties to implement innovatory studies and pilot projects concerned with issues of regional or national import.

The precise number of committees has not been defined because of divergent opinion.

(c) Information secretariat: it is suggested that the Welsh Committee for Educational Technology establish a full-time information secretariat for the following purposes:

(i) to provide clerical support service for the Welsh Committee

(ii) to support and promote the dissemination of information about the various dimensions of educational technology.

6.2.3 Relationship with other organisations

It is imperative that the proposed Welsh Committee should work in close collaboration with other bodies concerned with related innovation in education.

6.2.4 Financing the organisation

The terms of reference of this study did not include a consideration of costing and therefore all financial matters are deferred for further consideration.

6.2.5 Initial action

If the recommendation for the establishment of a Welsh Committee for Educational Technology is accepted, it is suggested that discussion should begin, without delay, to examine in detail the costing and structure of the proposed Committee.

It would seem most appropriate for the initiative in this case to come from the Welsh Education Office.

SUMMARY OF THE MAIN RECOMMENDATIONS

All numbers in parentheses refer to sections in the body of this report.

1 A directory of resource providers in Wales should be produced and published annually. Responsibility for this work should be borne by one of the organisations cited in this report (2.1.3).

2 A research project should be set up to examine the problems of distributing and exploiting general service material produced by BBC Wales and Independent Television (2.1.4).

3 There is an urgent need to convene a Standing Conference or similar body to coordinate and monitor curriculum innovation and the production of Welsh and Anglo-Welsh learning materials (3.7.1)

4 An information secretariat should be created to promote the dissemination of information about Welsh language and Anglo-Welsh learning resources (3.7.3).

5 Each local education authority should consider establishing a central list of non-commercial material produced and held within the authority (3.7.4).

6 A working party should be set up to examine the problem of bibliographic control of commercial publications in Wales (3.7.6).

7 As a long-term proposition, consideration should be given to the appointment of a full-time adviser for educational technology within each local education authority (4.5.1).

8 There is an urgent need to set up a Welsh Committee for Educational Technology. The Welsh Education Office should be invited to consider this matter (6.2.1 and 6.2.5).

APPENDIX I : ORGANISATIONS AND INDIVIDUALS CONSULTED DURING THE STUDY

A. Clwyd

1. Department of Education

Meeting of Advisory Team

Mr M K Evans	Deputy Director of Education
Mr A H Clark	Area Education Officer, Mold
Miss S Crosby	Physical Education Officer
Mr R L Ellis	Deputy Coordinator, Educational Technology
Mr D Hollins	Senior Drama Adviser
Mr C V Jones	Senior Science Adviser
Mr E V Jones	Senior Adviser for Special Education
Mr I C Jones	Coordinator, Educational Technology
Mr R Ll Jones	Teacher Adviser for Primary Education
Mr E O Lewis	Area Education Officer, Wrexham
Mrs L McCann	Librarian, Educational Technology Centre
Mr D R H Morris	Senior Music Adviser
Mr J I Owen	Media Productions Manager
Mr G W Owens	Senior Welsh Adviser
Mr E J Richards	Assistant Education Officer, Special Education
Mr H Roberts	Teacher Adviser, Primary Education
Mr G Roberts	Teacher Adviser, Primary Education
Mr M D Shorney	Area Education Officer, Abergele
Mr J Toogood	Development Officer, Pastoral Care Counselling
Mr R Wilson	Education Management

2. Education Technology Centre, Mold

Mr R L Ellis	Deputy Coordinator
Mr I C Jones	Coordinator
Mrs L McCann	Librarian
Mr J I Owen	Media Production Manager

3. County Library Department

Mr G Davies	County Librarian
Mr B Jones	Librarian, Cataloguing Department
Mr D Shone	Schools' and Children's Librarian

4. County Record Office

Mr G Veysey	County Archivist
Mr C Williams	Assistant County Archivist

5. *North East Wales Institute of Higher Education*

Dr J Clarke	Director of Resources
Miss O Jones	Librarian
Mr G Jones	Director of Continuing Education
Mr R Smith	Head of Resources, Kelsterton College of Technology
Mr G Williams	Senior Lecturer, INSET team

6. *College of Librarianship Wales/Clwyd Resources Based Learning Project*

Mr A Molyneaux	Research Fellow

B. **Dyfed**

1. *Department of Education*

Meeting of Advisory Team

Mr D Bentham	Assistant Director of Education
Mr D Davies	Language Adviser
Mr M Dyson	Audio-visual Aids Adviser, Haverfordwest
Mr D Evans	Audio-visual Adviser, Carmarthen
Mr G H V Jones	Audio-visual Adviser, Aberystwyth
Mr T G Michael	Senior Adviser
Miss D Morris	Nursery and Infants Adviser
Mr D G Williams	General and Primary Adviser

Meeting of Teachers' Centre Wardens

Mr M Owen	Ammanford Teachers' Centre
Mr G Parry	Haverfordwest Teachers' Centre
Mr A Watkins	Felinfach Teachers' Centre

Further Education In-service Training Course, Ferryside

Mr R Jones	Further Education Officer

2. *County Library Department*

Mr A Edwards	County Librarian
Mr G Lewis	Schools' and Chidren's Librarian

3. *Personnel Department*

Mr W Rees	Administrative Assistant

4. *University College, Aberystwyth*

Mr S Conway	Department of Education
Mr G Davies	Department of History
Mr H W Jones	Deputy Registrar
Mr E G Millward	Department of Welsh
Mr J B Smith	Department of Welsh History

5. *College of Librarianship Wales*

Mr G Evans	Department of Welsh Studies
Mr T Evans	Director of Media Services Unit
Mr D J Grogan	Head of Department of Bibliographical Studies
Mr G Huws	Department of Welsh Studies
Mr H Jones	Head of Department of Welsh Studies
Mr Rh Llwyd	Liaison and Training Department
Mr H Roberts	Department of Welsh Studies
Mrs E Williams	Welsh Language Librarian

C. **Gwent**

1. *Department of Education*

Mr E Finney	Senior Adviser, Primary Education
Mr G Porche	Senior Adviser for Science
Mr M Thomas	Adviser for Humanities

2. *County Library Department*

Mr M F A Elliott	County Librarian

3. *County Record Office*

Mr W H Baker	County Archivist

4. *Gwent College of Higher Education*

Mr D Rees	Head of the Faculty of Science

D. **Gwynedd**

1. *Department of Education*

Meeting of Advisory Team

Mr G Boyer	Primary Adviser
Mr J H Davies	Music Adviser
Mr C Hughes	Adviser for Secondary Education, Welsh Medium Teaching
Mrs E E Jones	Adviser for Primary Education, Welsh Medium Teaching
Mr D Jones	Adviser for Primary Education

Mr E L Jones	Educational Technology Adviser
Dr B L Powell	Further Education Adviser

Meeting of Teachers' Centre Wardens

Mr E Roberts	Llangefni Teachers' Centre
Mr M Williams	Pwllheli Teachers' Centre

2. *County Library Department*

Mr G Thomas	County Librarian
Mr J C Jones	Assistant County Librarian
Mrs R Jones	Schools' and Children's Librarian
Mrs E Mitcheson	Schools' and Children's Librarian, Caernarfon

3. *County Record Office*

Mr B Parry	County Archivist

4. *Coleg Normal, Bangor*

Mr J M Davies	Librarian
Mr B L Jones	Head of Department of In-service training
Dr E Parry	Senior Lecturer
Mr D Rees-Jones	Tutor Librarian

5. *University College of North Wales, Bangor*

Mr A P Dyson	Department of Education
Mr G W Jones	Department of Education

E. **Mid Glamorgan**

1. *Department of Education*

Meeting of Advisory Team

Mr K Hopkins	Assistant Director of Education
Mr J Edwards	Adviser for Spoken English
Mr J Evans	Adviser for Welsh and Primary Education
Mr M Evans	Senior Language Adviser
Mr N Harries	Adviser for Curriculum Development
Mr T Lewis	Senior Primary Adviser
Mr R Shepherd	Chief Adviser

Meeting of Teachers' Centre Wardens

Mr M Burrell	Pontypridd Teachers' Centre
Mr D Lewis	Bridgend Teachers' Centre

2. *County Library Department*

Mr R W Davies	County Librarian
Mr D J Thomas	Deputy County Librarian

F. Powys

1. *Department of Education*

Meeting of Advisory Team

Mr T A V Evans	Deputy Director of Education
Mr N Allaway	General Adviser
Mr K Charles	Section Head, Supplies Section
Mr D Hachford	Principal Adviser
Mr J S L Jones	Area Education Officer, Further Education
Mr J Morris	Junior School Headmaster

Meeting of Teachers' Centre Wardens

Mr L Williams	North Powys Teachers' Centre

2. *County Library Department*

Miss E Ducker	Deputy County Librarian

G. South Glamorgan

1. *Department of Education*

Meeting of Advisory Team

Mr B Harries	Welsh Language Adviser
Mr B M See	Further Education/Education Technology Adviser

Meeting of Teachers' Centre Wardens

Mr J Edwards	Barry Teachers' Centre
Mr J Evans	Dyffryn House Centre
Mr T H Williams	Cardiff Teachers' Centre

2. *County Library Department*

Mr G A C Dart	County Librarian
Mr E Goulden	Deputy County Librarian
Mr B Jones	Welsh Language Librarian
Mr J H Thomas	Principal Assistant Librarian

3. *University College, Cardiff*

Dr D Moss	Director: Centre for Educational Technology
Mr S Jones	Director: Extra Mural Department
Mr C Rees	Development and Research Officer
Dr C Thomas	Director: Welsh Language Unit

4. *South Glamorgan Institute of Higher Education*

Dr E Brent	Principal
Dr D V Ginn	Senior Lecturer in Educational Technology
Miss E Owen	Chief Librarian
Mr D E Turner	Assistant Principal
Mr J A Willsdon	Executive Officer: Language and Reading Centre

H. **West Glamorgan**

1. *Department of Education*

Meeting of Advisory Team

Mr R Davies	Primary Education Officer
Mr V John	Senior Adviser for Bilingual Education
Mr J Morgan	Welsh Language Adviser
Mr P Mullarkey	Teacher Adviser for Educational Technology
Mr I Parry	Chief Adviser

Meeting of Teachers' Centre Wardens

Mr A Davies	Clydach Teachers' Centre
Mr P Stevens	Arfon Teachers' Centre

2. *County Library Department*

Mr C Biscoe	Principal Assistant Librarian, Schools', Children's and Community Services

3. *West Glamorgan Institute of Higher Education*

Dr K Garwood	Vice Principal
Mr P Jones	Department of Educational Technology
Mr D Owen	Department of Welsh
Mr C Parsell	Librarian
Mrs J Quirk	Department of English

4. *University College, Swansea*

Professor E Evans	Department of Welsh
Mr J Fowler	Language Laboratory
Mr A Gilmore	Director, Computer Centre
Professor D J Pritchard	Department of Education

Other bodies

1. *British Broadcasting Corporation, Wales*

Mr G Roberts	Head of Educational Broadcasting

2. *Bwrdd Ffilmiau Cymraeg*

Mr N Williams	Development Officer

3. *Harlech Television*

Mr D Alexander	Educational Broadcasting

4. *National Folk Museum, St. Fagans*

Mr W Jones	Education Services

5. *National Language Unit for Wales*

Mr E Evans	Director

6. *National Library of Wales*

Mr D Jenkins	Librarian
Dr M Williams	Keeper of the Printed Books

7. *National Museum of Wales*

Mr J C Goodwin	Educational Officer
Mr D Gwylon	Assistant Education Officer

8. *Schools Council Committee for Wales*

Mr R James	Secretary
Mr H Mathews	Field Officer
Miss E Ogwen	Project Director
Mrs M Williams	Project Director

9. *Polytechnic of Wales*

Mr C Roberts	Deputy Director
Mr D Brooks	Media Services Department
Mr G W F Ewins	Librarian
Mr J Hanson	Staff Development Officer

10. *Urdd Gobaith Cymru*

Mr J Griffiths	Publications Department

11. *Welsh Books Council*

Mr A Jenkins	Director
Miss E Pierce-Jones	Publication Officer

12. *Welsh Joint Education Committee*

Mr M Jenkins	Welsh Department
Mr B J Griffiths	Further Education Department
Mr I Walters	Welsh Department

13. *Welsh Youth Libraries Group*

Mr C Biscoe
Mrs A Croft
Mr G Huws
Mrs R Jones
Mr G Lewis
Mrs E Mitcheson

Information was received from the following bodies
Northern Ireland Committee for Educational Technology

Scottish Council for Educational Technology

Consultative Meetings
Consultation has been sought throughout the study with the following:

Mr G Evans	HMI Welsh Education Office
Dr E Parry	Welsh Language Consultant to the Feasibility Study

APPENDIX II : PUBLICATIONS REFERRED TO IN THE REPORT

1. *Bibliotheca Celtica.* Aberystwyth: National Library of Wales, 1909-. Quinquennially.

2. *British National Bibliography.* London: British Library, 1950-. Weekly.

3. *Catalog Llyfray Cymraeg.* Cardiff: Undeb Cyhoeddwyr a Llyfrwerthwyr Cymraeg, 1960-. Irregular.

4. Central Advisory Council for Education (Wales). *Primary Education in Wales.* London: HMSO, 1967.

5. Collier, K G and others. *Colleges of Education and learning programmes: a proposal* (Working Paper 5). London: NCET, 1971.

6. Council for the Welsh Language. *Welsh for adults: a report to the Right Hon John Morris QC MP Secretary of State for Wales.* Cardiff: HMSO, 1976.

7. Department of Education and Science. *Central arrangements for promoting educational technology in the United Kingdom: report of the working party appointed by the Secretary of State for Education and Science.* London: HMSO, 1972.

8. Jones, R. *Llyfrau Cymraeg i blant.* Aberystwyth: Cyngor Llyfrau Cymraeg, 1975.

9. *Llais Llyfrau.* Aberystwyth: Welsh Books Council, 1964-. Quarterly.

10. *Llyfray Cymraeg i blant.* Cardiff: WJEC, 1969-. Annually.

11. National Council for Educational Technology. *Towards more effective learning.* London: Councils and Education Press, 1969.

12. National Union of Teachers. *Treasure chest for teachers: services available to teachers and schools.* Kettering: The Schoolmaster Publishing Co Ltd, 1975.

13. Schools Council Committee for Wales. *Teaching through the medium of Welsh in secondary schools – 2: a report on the Aberystwyth conference, September 1973.* Cardiff: Schools Council Committee for Wales, 1974.

14. Scottish Education Department. *National resources for education: a handbook for teachers.* Glasgow: Scottish Centre for Educational Technology, 1975.

15. Welsh Books Council. *Catalog llyfrau Cymraeg mewn print.* Aberystwyth: Y Cyngor Llyfrau Cymraeg, 1970.